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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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VISTEON 29074
BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, IL 60611

EXAMINER

LE, DAVID D

ART UNIT	PAPER NUMBER
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3681

DATE MAILED: 02/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/034,180

Applicant(s)

PHELAN ET AL.

Examiner

David D. Le

Art Unit

3681

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-14 and 16-34 is/are pending in the application.
- 4a) Of the above claim(s) 4, 5, 21, 22 and 26-31 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 32-34 is/are allowed.
- 6) ☒ Claim(s) 1-3, 7-14, 16-20 and 23-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

This is the second Office action on the merits of Application No. 10/034,180, filed 28 December 2001. Claims 1-5, 7-14, and 16-34 are pending. Claims 4-5, 21-22, and 26-31 are withdrawn as being drawn to a non-elected Species.

Documents

1. The following documents have been received and filed as part of the patent application:
 - Declaration and Power of Attorney, received on 02/28/02
 - Supplemental Information Disclosure Statement, received on 02/03/03
 - Newly submitted Declaration and Power of Attorney, received on 06/30/03
 - Corrected Drawings, received on 06/30/03

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 26 January 2004 has been entered.

Election/Restrictions

3. Claims 29-31 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Species A, there being no allowable generic or linking claim.

Election was made **with** traverse in Paper No. 5.

Claims 29-31 require the power source to provide electrical power to the inner and outer rotors; thereby, they are drawn to Species A, Figs. 1-4 and 11, which is a non-elected Species.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. **Claims 1-3 and 7-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

Claims 1-3 and 7-8:

Claim 1, line 6, recites the limitation "each interface". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. **Claims 9-13 are rejected under 35 U.S.C. 102(b) as being anticipated by U. S. Patent No. 4,776,235 to Gleasman et al.**

Claims 9-13:

Gleasman (Fig. 1, column 2, line 50 – column 5, line 61) discloses a no-slip, imposed differential comprising:

- An Engine power input shaft (11) for providing power to a differential (14);
- A first and a second output shaft (16 and 17), each output shaft having an interface (gear 26 or 27) to a transfer assembly (gear 32 or 33);
- A torque difference source (20) connected to each transfer assembly;
- Wherein the first output shaft and transfer assembly receive work from the differential, and the second transfer assembly and output shaft receive work from the torque difference source, (i.e. column 4, line 15 – column 5, line 6);

- Wherein the amount of work from the second transfer assembly and output shaft is greater than or equal to the amount of work from the first transfer assembly, (i.e. column 4, line 15 – column 5, line 6);
- Wherein the torque difference source is driven by a hydraulic system, which inherently comprises a pump, (i.e. column 3, lines 40-48);
- Wherein the method step of sensing a difference in shaft output power application is mechanically performed when gear (26) rotates at a different rate than gear (27) or when the first output shaft (16 or 17) rotates relative to the second output shaft (16 or 17);
- Wherein the method step of determining whether a correction in output power is needed is mechanically performed when the transferred output power from one of the output shafts is applied to the other of the output shafts for the purpose of moving the vehicle in an intended direction;
- It is inherent that Gleasman not-slip imposed differential has a mechanical (gearing) type of controller, which is using the gearing arrangement, as shown in Fig. 1, to identify a difference in shaft output power application and to determine whether a correction in output power is needed.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. **Claims 1-3, 7-8, 14, 16-20, and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gleasman et al. in view of U. S. Patent No. 6,520,880 to Fukushima et al.**

Claims 1-3, 7-8, 14, 16-20, and 23-25:

Gleasman (Fig. 1, column 2, line 50 – column 5, line 61) discloses a no-slip, imposed differential comprising:

- An Engine power input shaft (11) for providing power to a differential (14);
- A first and a second output shaft (16 and 17), each output shaft having an interface (gear 26 or 27) to a transfer assembly (gear 32 or 33);
- A torque difference source (20) connected to each transfer assembly;
- Wherein the first output shaft and transfer assembly receive work from the differential, and the second transfer assembly and output shaft receive work from the torque difference source, (i.e. column 4, line 15 – column 5, line 6);

- Wherein the amount of work from the second transfer assembly and output shaft is greater than or equal to the amount of work from the first transfer assembly, (i.e. column 4, line 15 – column 5, line 6);
- Wherein the torque difference source is driven by a hydraulic system, which inherently comprises a pump, (i.e. column 3, lines 40-48);
- Wherein sensing a difference in shaft output power application is mechanically performed when gear (26) rotates at a different rate than gear (27) or when the first output shaft (16 or 17) rotates relative to the second output shaft (16 or 17);
- Wherein determining whether a correction in output power is needed is mechanically performed when the transferred output power from one of the output shafts is applied to the other of the output shafts for the purpose of moving the vehicle in an intended direction;
- It is inherent that Gleasman not-slip imposed differential has a mechanical (gearing) type of controller, which is using the gearing arrangement, as shown in Fig. 1, to identify a difference in shaft output power application and to determine whether a correction in output power is needed.

Art Unit: 3681

Gleasman lacks:

- An electronic controller;
- Two electronic sensors for measuring wheel slip;
- A hydraulic pump;
- An inner rotor; and
- An outer rotor.

Fukushima (i.e. Figs. 1-2; column 1, line 58 – column 6, line 5), on the other hand, discloses a traction distribution device comprising:

- A controller (16) for controlling and monitoring power;
- A means for electronically measuring power in the first and second shafts, (i.e. column 5, lines 50-53);
- A hydraulic pump (30);
- A motor (20);
- An inner rotor (22); and
- An outer rotor (23).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Gleasman to include a motor having an inner and an outer rotors, which is powered by a hydraulic pump, and a controller for controlling and monitoring the power, based on the input of various sensors, in view of Fukushima, in order to effectively and controllably optimize the traction of a motor vehicle.

Allowable Subject Matter

10. Claims 32-34 are allowed.

Response to Arguments

11. Applicant's arguments filed on 26 January 2004 have been fully considered but they are not persuasive for the following reasons:

Argument concerning claims 9-13:

Applicant argues that because Gleasman reference lacks an electronic controller, therefore, it does not anticipate the method as claimed in claims 9-13, specifically the steps of "sensing a difference in shaft output power application," and "determining whether a correction in output power is needed."

Examiner respectfully disagrees with the above argument for the following reasons:

First, the claimed invention, as recited in claims 9-13, does not specifically require an electronic controller in order to perform those recited method steps.

Second, Gleasman does inherently have a mechanical type of controller and performs the above claimed method steps through a gearing arrangement as shown in Fig. 1 and further explained in the instant office action.

Accordingly, Gleasman, as set forth above, meets the claimed limitations.

Argument concerning claims 1-3, 7-8, 14, 16-20, and 23-25:

Applicant argues that Fukushima sensors do not inherently detect a wheel slip difference “indicative of the output power of the shafts.”

Examiner respectfully disagrees for the reason that Fukushima, column 5, lines 43-60, teaches an active control of the rate of distribution of traction with regard to the right – and left – wheel shafts (10, 9) using various sensors such as vehicle speed sensor, a steering-angle sensor, a lateral G sensor, and a yaw sensor, etc. In order to effectively and actively control the rate of distribution of traction with regard to the right – and left – wheel shafts (10, 9), Fukushima utilizes those mentioned sensors to effectively detect the wheel slip difference in output power of the wheel shafts.

Accordingly, as set forth above, the applied references meet the claimed limitations.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Duan (U. S. Patent No. 6,544,136) teaches a differential device for transferring torque and rotation from input shaft to a first output shaft and a second output shaft, as shown in Fig. 1.
- Duan (U. S. Patent No. 6,544,137) teaches a differential device as shown in Fig. 1.

13. This is a request for continued examination (R.C.E) of applicant's earlier Application No. 10/034,180. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Le whose telephone number is 703-305-3690. The examiner can normally be reached on Mon-Fri (0700-1530).


Art Unit: 3681

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles A Marmor can be reached on 703-308-0830. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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CHARLES A. MARMOR
SUPERVISORY PATENT EXAMINER
ART UNIT 3681